Age Group: Secondary Pupils

Aim:
To learn about the lifespan of waste and the importance of recycling.

Success Criteria:
ALL  Will be able to enjoy playing games that involve recyclable goods and raise awareness.
MOST Will be able to try to arrange items in order of their lifespan and understand the effect of landfills.
SOME Will be able to understand the process of recycling and apply it to their community.

Objectives:
• To investigate the lifespan of different items of waste if they are not recycled.
• Learn about the process of recycling.
• Play a series of games which utilise recyclable items.

Resources:
As many of the following items as possible:
• aluminium can (eg coke can)
• banana
• cigarette butt
• cotton rag
• glass bottle
• leather boot
• paper bag
• plastic 6-pack rings
• plastic jug
• rubber sole of the leather boot (above)
• Styrofoam cup
• tin can (soup or vegetable can)
• wool sock

Activities:
Timing:
• Starter activity 10 minutes
• Main teaching 15 minutes
• Reusing & recycling 10 minutes
• Development (group or individuals) 30 minutes
• Summary/Further activities 5 minutes

Homework/additional ideas:
Further activities could include:
Have each participant pledge one non-recyclable item that they plan to stop using from now on and put it on the wall. Create a recycling bin for participants to use from now on.
**STARTER ACTIVITY**

See how many things the students can count in the room that will be thrown into the bin as rubbish.

Make a spider diagram of this on the board, adding other types of rubbish that have not been mentioned.
Lay out the items you have collected and split the participants into groups. Label each item and give the groups a separate pile of cards detailing the life span of these items if they are not recycled. Have the participants work in groups to match up the items with how long they live for.

<table>
<thead>
<tr>
<th>Item</th>
<th>Life Span</th>
</tr>
</thead>
<tbody>
<tr>
<td>Banana</td>
<td>3-4 weeks</td>
</tr>
<tr>
<td>Paper bag</td>
<td>1 month</td>
</tr>
<tr>
<td>Cotton rag</td>
<td>5 months</td>
</tr>
<tr>
<td>Wool sock</td>
<td>1 year</td>
</tr>
<tr>
<td>Cigarette butt</td>
<td>2-5 years</td>
</tr>
<tr>
<td>Leather boot</td>
<td>40-50 years</td>
</tr>
<tr>
<td>Rubber sole (of the boot)</td>
<td>50-80 years</td>
</tr>
<tr>
<td>Tin can (soup or vegetable can)</td>
<td>80-100 years</td>
</tr>
<tr>
<td>Aluminium can (coca cola can)</td>
<td>200-500 years</td>
</tr>
<tr>
<td>Plastic 6-pack rings</td>
<td>450 years</td>
</tr>
<tr>
<td>Plastic jug</td>
<td>1 million years</td>
</tr>
<tr>
<td>Styrofoam cup</td>
<td>Unknown? Forever?</td>
</tr>
<tr>
<td>Glass bottle</td>
<td>Unknown? Forever?</td>
</tr>
</tbody>
</table>

Taken from ‘How Long Does Trash Last?’ (A Cooperative Learning Activity)
http://www.educationworld.com/a_lesson/03/lp308-04.shtml

Count each teams score to see how many they guessed correctly. Ask if anything has surprised them. Make the point that all this rubbish has to go somewhere and that landfills are bad for the earth (Some photos on page 4 you can print out and show to the group). Once you have matched up the items and life spans correctly you can talk a bit about how recycling takes place by referring to some of the diagrams provided on page 5.
LANDFILL IMAGES
**Paper Recycling Process**

1. Radiata Pine Thinnings
2. De-Barking Drum
3. Chipper
4. Thermomechanical Refiner
5. Paper Making Machine
6. Thermomechanical & Recycled Pulp Mix
7. Cleaning & Fine Screening
8. De-Inking
9. Kerbside Collection
10. After Collection
11.... Paper to paper

**Steel Recycling Process**

1. Collection
2. Sorting By Magnet
3. Steel Slugging
4. Steel
5. Grinding
6. Furnace
7. Flatter
8. Forming
9. End Products
REUSING & RECYCLING

Now go through the items that you have discussed and match up what items are recyclable and what items are not. Refer to the diagram provided below for help. Brainstorm on ideas for how you could reuse some items. If you have paints and colours it could become a crafts session.

For example:

• They could pick up things they would normally throw away and make wind chimes
• Using old plastic containers as lunch boxes
• Making jewellery boxes from old containers
• Making costumes from recycled material (you could have a fancy dress party!)
DEVELOPMENT (GROUP OR INDIVIDUALS) 30 MINUTES

• Bottle Bowling
  Set up bowling pins made from 2-litre plastic bottles, small bleach bottles, or tall dishwashing detergent bottles. Tip: Put about an inch of sand in the bottom of the bottles; the pins will still be easy to bowl down, but the bottles won’t fall as easily as they would if there was no sand in them.

• Waste No Water
  Fill a clean open-topped non-breakable container (a plastic spaghetti sauce jar or a soup can work well) with water for each team; be sure the containers are the exact same size and filled to the brim with water. Set a start and finish point. At a signal, the first runner heads for the finish line, walks over the line, turns around and heads back to his or her team, and passes the container to the next person in line. At the end of the race, the team with the most water still in the container is the winner.

• Newspaper Relay
  Provide a stack of newspapers for each team and have team members divide the stack evenly among themselves. Set up a paper bag or recycle bin (or whatever container your community uses for recycling newspaper) at a finish line. At a signal, the first member of the team carries his or her stack of newspaper to the finish line, deposits it in the container, runs back to the team, and taps the next person in line.

• Putt for Points
  Paint five coffee cans with bright colors. Paint or draw a point value on each can. (Suggestions: Paint the number 5 on one can, the number 10 on another, 15 on a third, 20 on a fourth, and 50 on the fifth.) Set up the coffee cans in a row. Give students three golf balls and three chances to accumulate points for their team.

• Tumbling Towers
  This activity can be done one team at a time. Provide a recycle bin full of clean aluminium cans (for example, coca cola cans). At a signal, students have 2 minutes to stack the cans one atop another. Each student takes a turn at building a tower by stacking cans one atop the other. The student on each team who builds the tallest tower then represents his or her team in a final team-against-team stacking competition.

Taken from ‘Recycle Games’
http://www.educationworld.com/a_lesson/03/lp308-02.shtml
**SUMMARY/ FURTHER ACTIVITIES: 5 MINUTES**

Have each participant pledge one non-recyclable item that they plan to stop using from now on and put it on the wall.

Create a recycling bin for participants to use from now on.

**RUBBISH FOR A DAY**

Have each student keep all their trash for a day.

Whenever they want to throw something out, they should place it in a bag.

Have them continue their day, but still carrying their rubbish around. This is a great way to show students how much waste they produce in a day.

You can add a maths connection by weighing each bag at the end of the day and comparing weights.

You may want them to use clear zip-top bags so students can see the garbage and discuss what could have been reused, recycled, or reduced.

Have them to do the activity again but challenge them to cut their waste in half. What in their trash is biodegradable? What isn’t?